

Date: Thursday, 5/3/2007 11:34:52 AM
 User: Kim Johnston

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services		Drawing Name	: 412 X-TUBE INST,LOW NARROW AFT	
Job Number	: 32180		Part Number	: D412664205	
Estimate Number	: 12817		Drawing Number	: D412-664 UNDER REV	
P.O. Number	:		Project Number	: N/A	
This Issue	: 5/3/2007	S.O. No. :	Drawing Revision	: JRC JLM	
Prsht Rev.	: NC		Material	:	
First Issue	: / /	Type : LANDING GEAR	Due Date	: 6/1/2007 Qty: 1 Um: Each	
Previous Run	: 32179				
Written By	:				
Checked & Approved By	: <u>JLM 07-05-03</u>				
Comment	: Est Rev:A New Issue 07-04-05 JLM				

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
1.0	DC	DOCUMENT CONTROL 
Comment: DOCUMENT CONTROL Photocopy bluefile and create labels as per PPP D412-664-205 CHG001 <i>DC L</i>		
2.0	PACKAGING 1	PACKAGING RESOURCE #1 
Comment: PACKAGING RESOURCE #1 Pick Packing Kit		
3.0	D412664245	CROSSTUBE ASSEMBLY, LOW NARROW AFT, 412C 
Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Crosstube 412 Low Batch: <u>B31597</u>		
4.0	AN640A	Bolt 
Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s) Bolt Batch: <u>M18185</u> <i>✓</i>		
5.0	AN641A	Bolt 
Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s) Bolt Batch: <u>M101428</u> <i>✓</i> <u>7/6/7</u> <i>SP</i>		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: Date: 07/06/08
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Drawing Name: 412 X-TUBE INST,LOW NARROW AFT

Job Number: 32180

Part Number: D412664205

Job Number:



Seq. #: Machine Or Operation:

Description :

6.0 MS21042L6 Nut



Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)

Nut

Batch: M101660

7.0 AN960JD616 Washer



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Washer

Batch: M103641

2/6/7 SP

8.0 QC4 INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

Do 7/1/8 (1) C 9/06/08 (1)

9.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Identify and pack for shipping as per PPP D412-664-105

D H A F P 7/6/8 (1)

10.0 QC21 FINAL INSPECTION/W/O RELEASE



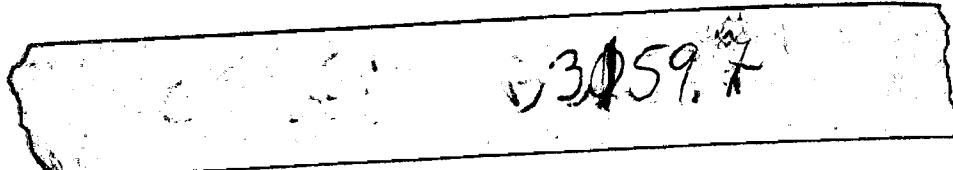
Comment: FINAL INSPECTION/W/O RELEASE

Do 7/1/8

Job Completion



7/7/08



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

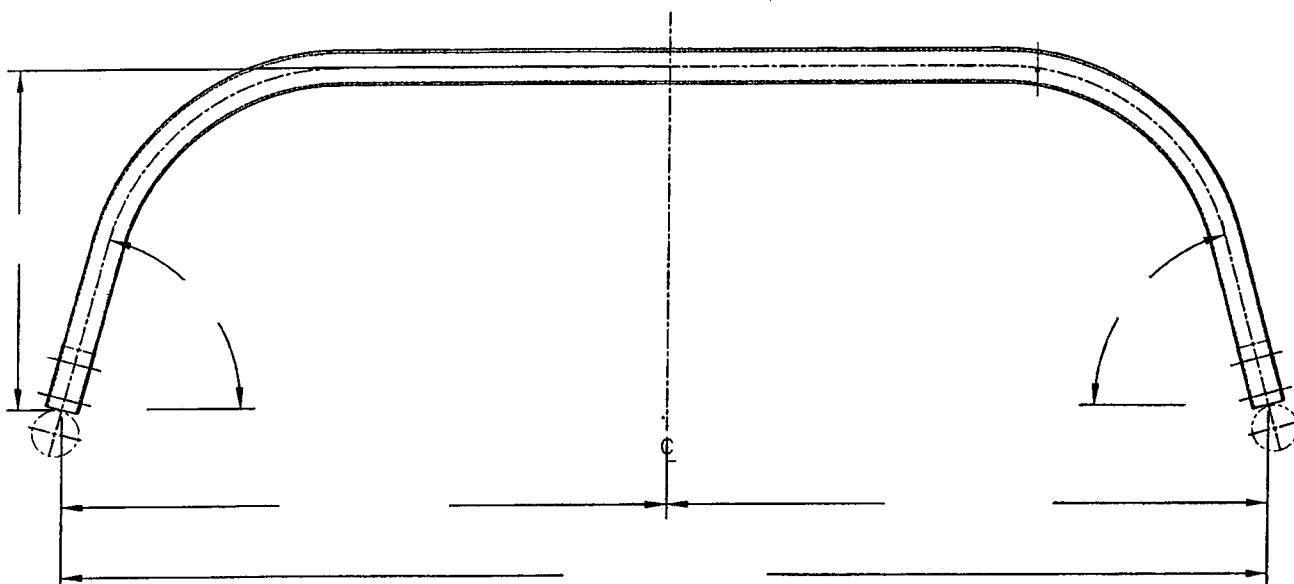
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	32180
Description: Crosstube Low Narrow Aft (412)	Part Number:	D412-664-205
Inspection Dwg: D412-664-245	Rev: C	Page 1 of 1

Required Dimension	Min	Max
Height	16.69	16.95
1/2 Span	46.47	46.73
Angle	49°	52°
Total Span	92.94	93.46



Comments

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.04.27	New Issue	KJ/JM	<i>[Signature]</i>

DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		
CHECKED	APPROVED	DRAWING NO.		REV. C
		D412-664-245		SHEET 1 OF 3
DATE		TITLE		SCALE
07.03.29		CROSSTUBE ASS'Y (412 LOW-N AFT)		NTS
A	06.12.01	NEW ISSUE		
B	07.03.01	CHG CUFF AREA, CHG RUBBER CUSHION		
C	07.03.29	CHG RIVET AND RUBBER CUSHION		

RELEASED

07.04.24

PARTS LIST:

Qty	Part Number	Description
X	D412-664-245	CROSSTUBE ASSEMBLY (412 LOW-NARROW AFT)
1	D6009-129	CROSSTUBE
2	D2856-600-1009	ABRASION STRIP
1	D2896-1	SUPPORT
2	D3189-1	CHAFING SHIELD
2	D3595-063-570	RUBBER CUSHION
2	D3606-1	CUFF
44	CR3212-4-07	RIVET (OR M7885/3-4-07)
4	MS21920-28	CLAMP
2	MS21920-30	CLAMP (OR MS21920-32)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
A/R	SIKAFLEX-241-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

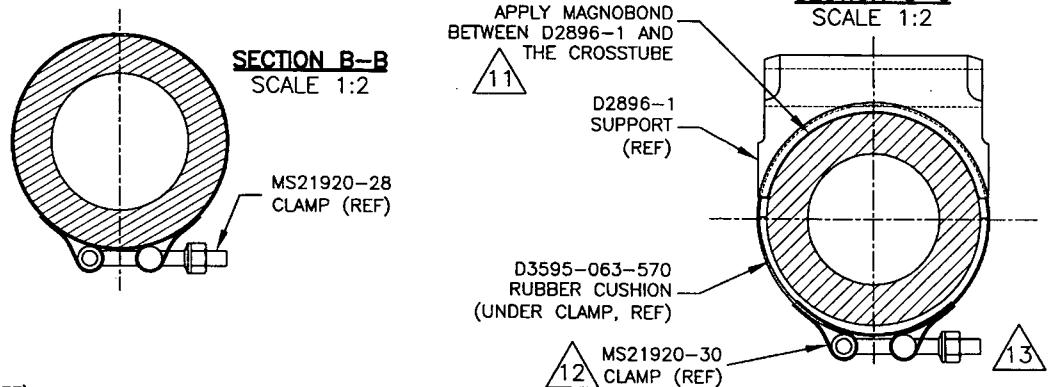
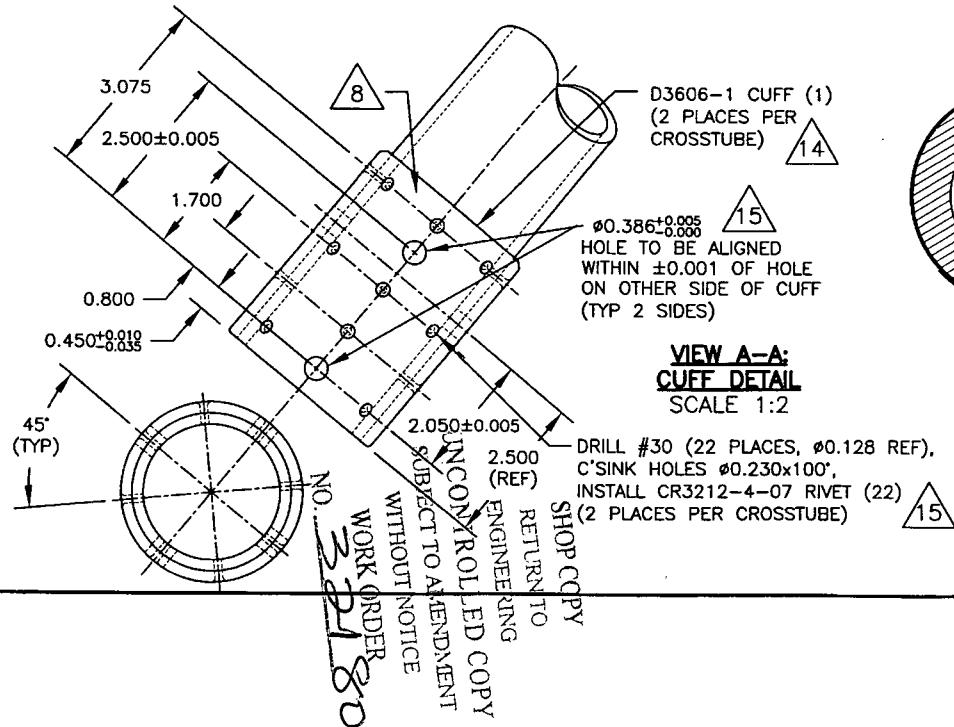
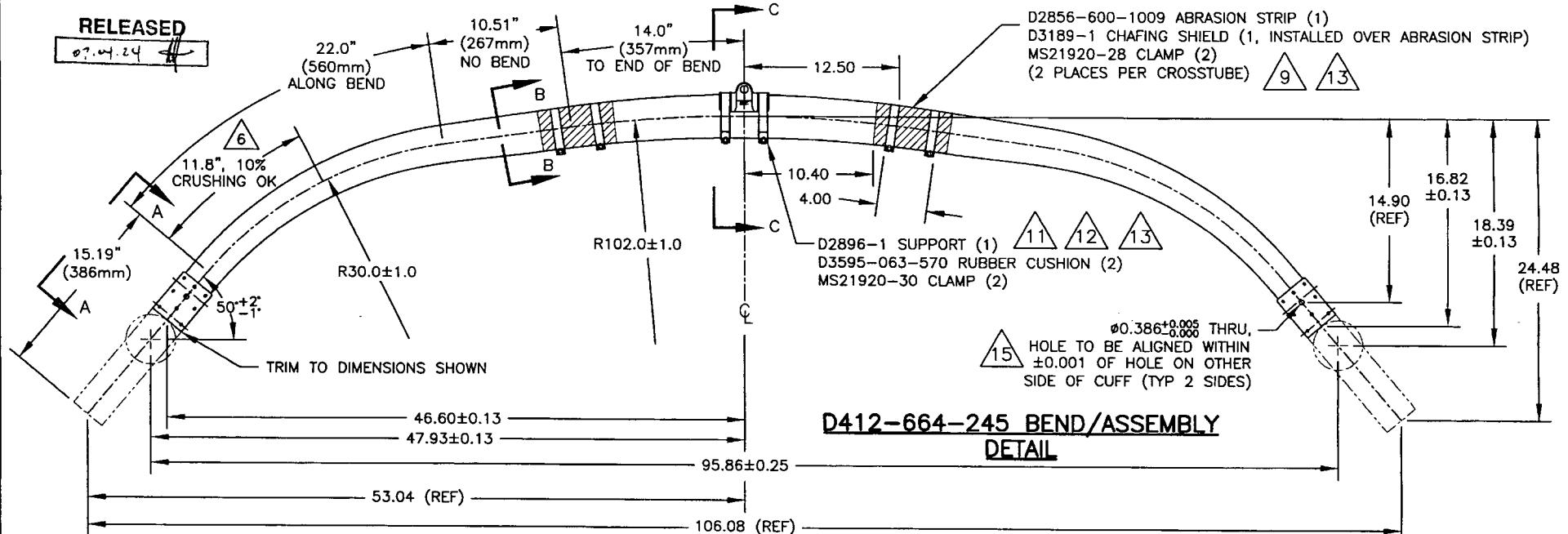
GENERAL NOTES:

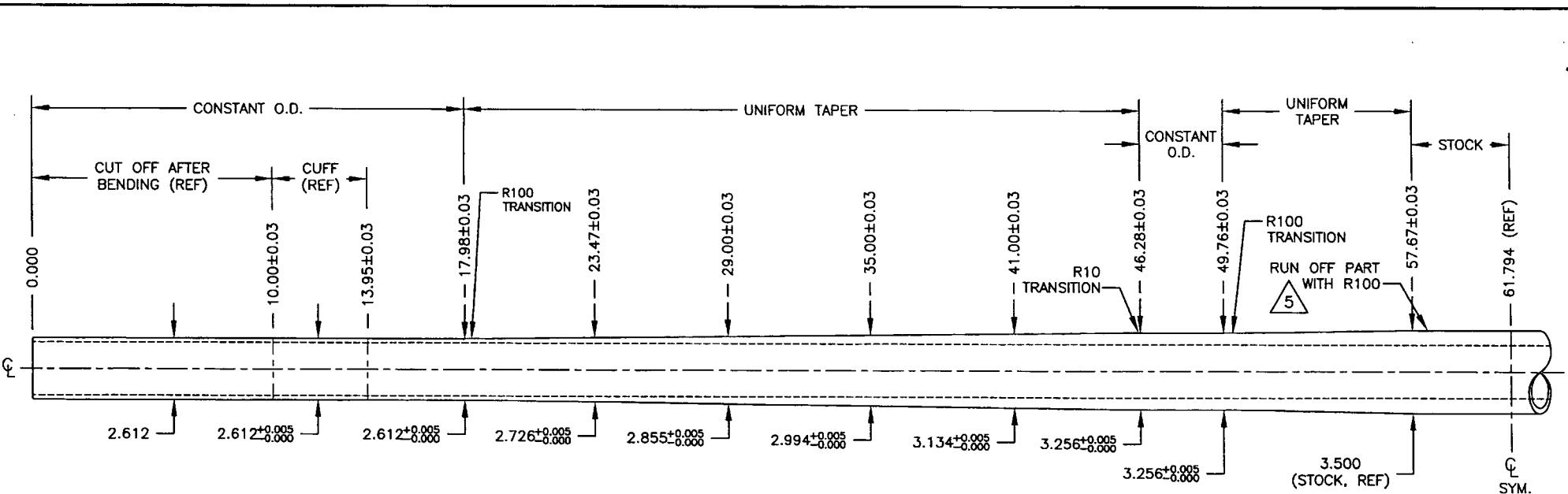
- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6009-129
FINISHED LENGTH = 123.59 ± 0.020 (BEFORE BENDING/TRIMMING)
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO
BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-600-1009 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF
CROSSTUBE PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1
THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER
INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE
D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE
CROSSTUBE SUPPORT.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN
AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 14) INSTALL D3606-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A
LAYER OF SIKAFLEX-241-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN
CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 15) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

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ENGINEERING
SAFETY CONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 32180

RELEASED

07.04.24





D412-664-245 MACHINING DETAIL

RELEASED

07.04.19

NO. 32180
WORK ORDER
WITHOUT NOTICE
UNCONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY
SUBJECT TO AMENDMENT

COPYRIGHT © 2006 BY DART AEROSPACE LTD.		DESIGN	DRAWN BY	DART	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED			DRAWING NO.	REV. C
				D412-664-245	SHEET 3 OF 3
DATE		07.03.29		TITLE	SCALE
				CROSSTUBE (412 LOW-NARROW AFT)	

Date: Thursday, 5/3/2007 11:34:52 AM
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P.O. Number	:			Project Number	: N/A		
This Issue	: 5/3/2007	S.O. No.	:	Drawing Revision	: JHR 2		
Prsht Rev.	: NC			Material	:		
First Issue	: / /			Due Date	: 6/1/2007		
Previous Run	: 32179			Qty:	1	Um:	Each
Written By	:			Handwritten signature: 5/3/03			
Checked & Approved By	:						
Comment	: Est Rev:A New Issue 07-04-05 JLM						

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Job Number:



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Comment: PACKAGING RESOURCE #1 Pick Packing Kit		
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Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s) Bolt Batch: _____		
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Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s) Bolt Batch: _____		